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PTO/SB/05 (12/97)

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<b>UTILITY PATENT APPLICATION TRANSMITTAL</b> (Only for new nonprovisional applications under 37 CFR 1.53(b))	Attorney Docket No.: P98-2369
	First Named Inventor: Meyer <i>et. al</i>
	Title: Automatic Capture and Comparison of Computer Configuration Data
	Express Mail Label No. <u>EL 404 724 558 US</u>
<b>APPLICATION ELEMENTS</b> See MPEP Chapter 600 concerning utility patent application contents	ADDRESS TO: Assistant Commissioner for Patents Box Patent Application Washington, DC 20231
1. <input checked="" type="checkbox"/> Fee Transmittal Form (e.g., PTO/SB/17) (Submit an original, and a duplicate for fee processing)	5. <input type="checkbox"/> Incorporation by Reference (useable if Box 4b is checked) The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered to be part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
2. <input checked="" type="checkbox"/> Specification Total pages <u>35</u> (preferred arrangement set forth below) <ul style="list-style-type: none"><li>- Descriptive title of the Invention</li><li>- Cross References to Related Applications</li><li>- Statement Regarding Fed sponsored R&amp;D</li><li>- Reference to Microfiche Appendix</li><li>- Background of the Invention</li><li>- Brief Summary of the Invention</li><li>- Brief Description of the Drawings (if filed)</li><li>- Detailed Description</li><li>- Claim(s)</li><li>- Abstract of the Disclosure</li></ul>	6. <input type="checkbox"/> Microfiche Computer Program (Appendix)
3. <input checked="" type="checkbox"/> Drawing(s) (35USC d113) Total pages <u>3</u>	7. <input type="checkbox"/> Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary) <ul style="list-style-type: none"><li>a. <input type="checkbox"/> Computer Readable Copy</li><li>b. <input type="checkbox"/> Paper Copy (identical to computer copy)</li><li>c. <input type="checkbox"/> Statement verifying identity of above copies</li></ul>
4. Oath of Declaration <u>UNSIGNED</u> Total pages <u>2</u> <ul style="list-style-type: none"><li>a. <input type="checkbox"/> Newly Executed (original or copy)</li><li>b. <input type="checkbox"/> Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional with Box 17 completed)<ul style="list-style-type: none"><li>i. <input type="checkbox"/> Deletion of inventor(s) (Signed statement attached deleting inventor(s) named in the prior application, see 37, C.F.R 1.63(d)(2) and 1.33(b).</li></ul></li></ul>	8. <input type="checkbox"/> Assignment Papers (cover sheet & Documents(s)) 9. <input type="checkbox"/> 37 CFR §3.73(b) Statement (when there is an assignee) <input type="checkbox"/> Power of Attorney 10. <input type="checkbox"/> English Translation Document (if applicable) 11. <input type="checkbox"/> Information Disclosure Statement (IDS)/PTO-1449 <input type="checkbox"/> Copies of IDS Citations 12. <input type="checkbox"/> Preliminary Amendment 13. <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503) (Should be specifically itemized) 14. <input type="checkbox"/> *Small Entity Statement(s) (PTO/SB/09-12) <input type="checkbox"/> Statement filed in prior application -Status still proper and desired 15. <input type="checkbox"/> Certified Copy of Priority Document(s) . 16. <input type="checkbox"/> Other:  * A new statement is required to be entitled to pay small entity fees, except where one has been filed in a prior application and is being relied upon.
17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information below and in a preliminary amendment:  <input type="checkbox"/> Continuation <input type="checkbox"/> Divisional <input type="checkbox"/> Continuation-in-part (CIP) of prior application No: .  Prior application information: Examiner: Group / Art Unit:	
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October 28, 1999, via Express Mail

Commissioner of Patents

Box **PATENT APPLICATION**

Washington DC 20231

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10/28/99 Oraline Johnson  
Date of Mailing Signature

Re: Patent Application of **Compaq Computer Corporation** filed herewith:

Inventorship: **Meyer et. al** (John E. Meyer, John S. Harsany, Tim J. Lyons, David E. Gorman, Hung K. Dinh)

Title: **Automatic Capture and Comparison of Computer Configuration Data** (Docket No. **P98-2369**)

Honorable Commissioner:

Enclosed are PTO forms PTO/SB/05 and PTO/SB/17, with application elements and accompanying application parts as listed therein.

Respectfully submitted,

Betty Formby  
Betty Formby, Registration No. 36,536

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# Automatic Capture and Comparison of Computer Configuration Data

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U.S. Patent Application of:

<u>John E. Meyer,</u>	Inventor
<u>John S. Harsany,</u>	Inventor
<u>Tim J. Lyons,</u>	Inventor
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Compaq Computer Corporation, Assignee

Attorney's Docket No. P98-2369  
Groover & Associates, P.C.

## Automatic Capture and Comparison of Computer Configuration Data

The present application relates to diagnosis and service of computer faults.

### 5 Background and Summary of the Invention

In recent decades, computers have become integral tools for information processing. Businesses and individuals rely on commercially available PCs for many purposes. To be competitive, companies provide extensive customer support for the machines they sell and  
10 expend considerable resources on diagnosis and repair of computers.

A large number of service calls deal with problems created by recent changes in software and hardware configurations on the computer. Identifying recent configuration changes helps diagnose computer faults. Many different problems can arise during the use of  
15 computer software and hardware, so customer service needs detailed information about the specific hardware and operating system configurations from the computer to resolve problems.

Service personnel can gather the information they need by going to the actual site of the computer. This is expensive and usually not  
20 cost effective. More often, service personnel gather the information they need directly from the customer over the telephone. This solution is not ideal, because problems with the operation of computers may often be complex, and users do not always know what information service personnel need to resolve the service call.

25 This problem can be partially addressed by installing a diagnostics program on the customer's computer (e.g., Compaq Diagnostics for Windows) that locally collects hardware and operating system

information from the computer. The customer verbally provides this information to customer service during a service call.

### **Automatic Capture and Comparison of Computer Configuration Data**

5        The information yielded by diagnostics programs does not identify recent configuration changes in the hardware and software. Since recent configuration changes are often the source of a computer problem, there is need for a way to generate comprehensive configuration snapshots which identify configuration changes for service  
10 personnel to use during a service call.

      The present application teaches, among many things, an improved method of servicing and diagnosing computers. Computer service tools require on-line functionality to identify and resolve problems without taking the computer off-line, and a simple collection  
15 process for gathering the computer information required to effectively resolve service cases. This invention provides a simplified process of capturing comprehensive information about the computer hardware and operating system and compares previous configurations with current configurations to help identify recent changes.

20        A diagnostics program captures hardware and operating system configurations when the program is installed on the computer. Later, when a computer owner calls customer service with a problem, the computer owner runs the diagnostic program, which captures the current hardware and operating system configurations. The program  
25 performs this capture without the need to restart the computer or take it off-line. The original configuration settings (captured when the program was installed) serve as a baseline for comparison to the current configuration. The program output highlights any significant

changes that have occurred in the configurations and automatically updates the output file to reflect the latest configuration and differences relative to the baseline. Once this information is gathered, customer service uses it to assist in servicing the customer's computer.

- 5           By automatically performing on-line hardware and operating system information capture and displaying differences between base line and current configurations, the invention provides many advantages. It allows faster problem resolution time, since essential data is gathered and output in a format that highlights the most likely problem spots. This reduces administration costs and resource expenditure in  
10 customer service and diagnostics, while maintaining or improving quality of service to the customer. Computer downtime for the customer is also reduced since service calls are resolved more quickly.

## Brief Description of the Drawings

The disclosed inventions will be described with reference to the accompanying drawings, which show important sample embodiments of the invention and which are incorporated in the specification hereof by reference, wherein:

**Figure 1** shows a flowchart of the diagnostic process using the present innovations.

**Figure 2** shows a sample display window that the customer will see when the diagnostic is run.

**Figure 3** shows a computer according to the presently preferred embodiment.

## Detailed Description of the Preferred Embodiments

The numerous innovative teachings of the present application will be described with particular reference to the presently preferred embodiment. However, it should be understood that this class of  
5 embodiments provides only a few examples of the many advantageous uses of the innovative teachings herein. In general, statements made in the specification of the present application do not necessarily delimit any of the various claimed inventions. Moreover, some statements may apply to some inventive features but not to others.

10 **Figure 1** shows a flow chart of the innovative process. First the program is installed and run (cpqdiag.exe) in a silent mode during installation to gather the base line computer hardware and operating system information in an ASCII text file called base.log. This file is stored in the \Windows\Cpqdiag\ directory (step 102). Later, the  
15 customer has a computer problem that requires customer service assistance (step 104). The customer then runs Compaq Diagnostics System Record tool (cpqdiaga.exe) (step 106). The Compaq Diagnostics System Record tool automatically runs Compaq Diagnostics for Windows in silent mode to gather the current computer hardware and  
20 operating system information in an ASCII text file called now.log (step 108). In the preferred embodiment, this data gathering is done without the need to restart the computer or take the computer off-line, because operating system level diagnostics are used. The invention could be implemented with embedded diagnostics as well.

25 The Compaq Diagnostics System Record tool compares the hardware and operating system configuration files (base.log and now.log) previously created by Compaq Diagnostics for Windows. The differences produced by the comparison are highlighted (step 110).

The output is displayed on the customer's screen in a bifurcated



window showing base line configurations on one side, the current configurations on the other. **Figure 2** shows a sample display window, with the base.log data on the left and now.log data on the right. The "free physical memory" configuration settings, **202** and **204**, differ and are therefore highlighted in the output.

**Figure 3** shows a block diagram of a computer system 300 according to the presently preferred embodiment. In this example, the computer system, includes:

user input devices (*e.g.* keyboard **335** and mouse **340**);

at least one microprocessor 325 which is operatively connected to receive inputs from said input device, through an interface manager chip **330** (which also provides an interface to the various ports);

a power supply 305 which is connected to draw power from AC mains and provide DC voltage to the computer system 300 components; the innovative power supply control circuit 310, located within the power supply 305, connects to fan 100 and also interfaces to the microprocessor 325;

a memory (*e.g.* flash or non-volatile memory **355** and RAM **360**), which is accessible by the microprocessor;

a data output device (*e.g.* display **350** and video display adapter card **345**) which is connected to output data generated by microprocessor; and

a magnetic disk drive **370** which is read-write accessible, through an interface unit **365**, by the microprocessor.

Optionally, of course, many other components can be included, and this configuration is not definitive by any means. For example, the computer may also include a CD-ROM drive **380** and floppy disk drive ("FDD") **375** which may interface to the disk interface controller 365.

Additionally, L2 cache **385** may be added to speed data access from the disk drives to the microprocessor, and a PCMCIA **390** slot accommodates peripheral enhancements.

5 Comprehensive data is gathered in the ASCII text files (base.log and now.log) in steps 102 and 108 relating to the hardware and operating system configurations. The attached output offers a sample file format for the base.log and now.log output files. The information gathered in these files relates to the system itself, asset control, input devices, communication, storage, video, memory, multimedia, the  
10 operating system, architecture, computer health, and various miscellaneous data.

The system data displayed includes the date and time, the name of the computer product, a machine ID, processor statistics, and system ROM information.

15 Asset control output includes the product name, which processor is used, and an asset tag.

Input devices output includes information on the keyboard and the mouse.

20 Communication output displays data for the various ports. Storage data includes logical drive information and physical drive information.

Video output includes the current graphics resolution, the primary monitor attached, video display driver, and the video controller ROM.

25 Memory output includes the system board, total memory, and windows memory information.

Multimedia output includes data about the CDROM, the mixer device driver capabilities, the waveform output device driver capabilities, waveform input device driver capabilities, MIDI input and output

device driver capabilities, and auxiliary audio device driver capabilities.

Windows output includes which version of Windows is in use, the locations of directories, and Windows memory information.

Architecture output includes PCI device information, and whether  
5 the system has PCMCIA capabilities.

Health output includes the temperature, and whether the ROM has embedded diagnostics.

Some of the miscellaneous output information deals with when  
the system was last modified, BIOS data, system configuration  
10 memory, interrupt vector table, a power conversion record, system  
standby timeout record, screen saver record, hard drive timeout record,  
security features record, processor/memory/cache record, general  
system peripheral and input device information record, memory module  
information record, timeout default value record, extended disk support  
15 record, and a product name header record.

### Sample Now.log/Base.log file format

Compaq Diagnostics for Windows 2.11

#### System

20

Date . . . . . 9/8/98  
Time . . . . . 10:07:40AM

Product . . . . . Armada 7792DM

#### Machine ID

25

From System Board . . . . . 2BC

Processor . . . . . Pentium(R) w/ MMX at 266 MHz

CPU ID . . . . . 0581

Numeric Coprocessor . . . . . Integrated 387-Compatible

30

Secondary Cache . . . . . Installed

Size . . . . . 512 Kbytes

Write policy . . . . . Write back

Optional . . . . . Optional/Permanent  
Asset tag . . . . . 7804BS521071  
Current System Speed . . . . . High

5 System ROM  
Revision . . . . . 3/20/98  
Family . . . . . 586S  
Flashable . . . . . Yes  
Socketed . . . . . No

10 Video Controller ROM  
Revision . . . . . 12/15/97  
Does ROM support F10 partition . . . . Yes  
Backup copy of CMOS supported . . . . No  
Does ROM have embedded diagnostics . . No

Armada 7792DM is a trademark of Compaq Computer Corporation.

15 AssetControl

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Product . . . . . Armada 7792DM

20 Processor . . . . . Pentium(R) w/ MMX at 266 MHz  
Asset tag . . . . . 7804BS521071  
System board revision level  
Assembly Version . . . . . 1  
Functional Revision Level . . . . . A

25 Input Devices

---

Keyboard

30 Type . . . . . (101- or 102-key) IBM enhanced/compatible  
Number of function keys . . . . . 12  
Speed . . . . . 15 ms  
Delay . . . . . 0 ms

Mouse

35 Type . . . . . Standard PS/2 Port Mouse  
Speed . . . . . 1  
Double click time . . . . . 500 ms  
Buttons swapped . . . . . No

---

Communication

40 LPT Ports . . . . . LPT 1 (Address 0x0378)  
  
COM Ports . . . . . COM 1 (Address 0x03F8)  
COM 2 (Address 0x02F8)

COM 3 (Address 0x03E8)

5 Modem . . . . . Compaq SpeedPaq 33.6 Fax  
Baud . . . . . 33600  
Port . . . . . COM2  
Variant . . . . . United States  
Firmware . . . . . 1.22

Storage

10 Logical Drive Information

C: Hard Drive . . . . . 1.996 GB ( 59 MB Free)  
D: Hard Drive . . . . . 1.996 GB ( 228 MB Free)  
E: Hard Drive . . . . . 760 ( 240 MB Free)  
15 F: CD-ROM Drive  
H: Remote/Network Drive  
I: Remote/Network Drive  
K: Remote/Network Drive  
L: Remote/Network Drive  
20 N: Remote/Network Drive  
Q: Remote/Network Drive  
S: Remote/Network Drive (Drive\_E)  
U: Remote/Network Drive

Physical Drive Information

25 IBM-DPLA-25120 Hard Drive  
Capacity . . . . . 5124 MB  
Serial Number . . . . . D34D31L5589  
Firmware Revision . . . . . PL80AB1A  
Interface . . . . . IDE  
30 Controller . . . . . Primary  
Position . . . . . Master

Compaq Fibre Channel Tape Controller  
Firmware Revision . . . . . Y  
Devices Attached . . . . . 0

35 COMPAQ CRD-S311 CDROM  
Firmware Revision . . . . . 1.05  
Adapter . . . . . 0  
Target . . . . . 1  
Lun . . . . . 0

40 Video

Current graphics resolution . 1024 x 768  
 Primary Monitor attached to . S3 Aurora64V+ Graphics Controller  
 Video device driver(s)  
 DISPLAY.DRV=pnpdrvrv.drv  
 386GRABBER=vgafull.3gr  
 Date and Time . . . . . 8/24/96, 11:11:10AM  
 Size . . . . . 14624 Bytes  
 Company Name . . . . . Microsoft Corporation  
 Product Name (Driver) . . Microsoft® Windows® Operating System  
 Product Version . . . . . 4.00.950  
 File Description . . . . . Combined VGA/DIB 386 enhanced mode display  
 component  
 File Version . . . . . 4.00.950  
 Internal Name . . . . . GRABBER  
 Original Filename . . . . . VGAFULL.3GR  
 Design operating system . DOS-Win16

Display Panel Type . . . . . 4  
 Video Controller ROM  
 Revision . . . . . 12/15/97

## Memory

System Board . . . . . 16 Megabytes  
 DIMM Slot 1 . . . . . 0 Megabytes  
 DIMM Slot 2 . . . . . 16 Megabytes  
 Total Compaq Memory . . . . . 32 Megabytes

## Windows Memory Information

Total Physical Memory . . . 33054 Kbytes  
 Free Physical Memory . . . . 0 Kbytes  
 Total Virtual Memory . . . . 2143289 Kbytes  
 Free Virtual Memory . . . . . 2053373 Kbytes

## Multimedia

### COMPAQ CRD-S311 CDROM

Firmware Revision . . . . . 1.05  
 Adapter . . . . . 0  
 Target . . . . . 1  
 Lun . . . . . 0

## Mixer device driver(s) capabilities (see Compaq for technical support)

Product Name (Driver) . . . . . ESS AudioDrive Mixer (220)  
 Company Name . . . . . ESS Technology  
 Product Identifier . . . . . 39  
 Driver Version . . . . . 4.4  
 Destination Lines . . . . . 3

Waveform Output device driver(s) capabilities (see Compaq for technical support)

5      Product Name (Driver) . . . . . ESS AudioDrive Playback (220)  
      Company Name . . . . . ESS Technology  
      Product Identifier . . . . . 37  
      Driver Version . . . . . 4.4  
      Pitch Control . . . . . Not Supported  
      Playback Rate Control . . . . . Not Supported  
10     Volume Control . . . . . Separate left and right control  
      Output Format . . . . . Stereo  
      Formats Supported . . . . . 11.025 kHz, 8-bit, Mono  
   11.025 kHz, 8-bit, Stereo  
   11.025 kHz, 16-bit, Mono  
15     11.025 kHz, 16-bit, Stereo  
   22.050 kHz, 8-bit, Mono  
   22.050 kHz, 8-bit, Stereo  
   22.050 kHz, 16-bit, Mono  
   22.050 kHz, 16-bit, Stereo  
20     44.100 kHz, 8-bit, Mono  
   44.100 kHz, 8-bit, Stereo  
   44.100 kHz, 16-bit, Mono  
   44.100 kHz, 16-bit, Stereo

Waveform Output device driver(s) capabilities (see Compaq for technical support)

25     Product Name (Driver) . . . . . Compaq Portable Wave #00 Line  
      Company Name . . . . . Compaq Computer Corporation  
      Product Identifier . . . . . 11  
      Driver Version . . . . . 0.1  
      Output Format . . . . . Monaural

30     Waveform Input device driver(s) capabilities (see Compaq for technical support)

      Product Name (Driver) . . . . . ESS AudioDrive Record (220)  
      Company Name . . . . . ESS Technology  
      Product Identifier . . . . . 38  
35     Driver Version . . . . . 4.4  
      Input Format . . . . . Stereo  
      Formats Supported . . . . . 11.025 kHz, 8-bit, Mono  
   11.025 kHz, 8-bit, Stereo  
   11.025 kHz, 16-bit, Mono  
40     11.025 kHz, 16-bit, Stereo  
   22.050 kHz, 8-bit, Mono  
   22.050 kHz, 8-bit, Stereo  
   22.050 kHz, 16-bit, Mono  
   22.050 kHz, 16-bit, Stereo  
45     44.100 kHz, 8-bit, Mono  
   44.100 kHz, 8-bit, Stereo  
   44.100 kHz, 16-bit, Mono  
   44.100 kHz, 16-bit, Stereo

Waveform Input device driver(s) capabilities (see Compaq for technical support)

support)

5      Product Name (Driver) . . . . . Compaq Portable Wave #00 Line  
      Company Name . . . . . Compaq Computer Corporation  
      Product Identifier . . . . . 10  
      Driver Version . . . . . 0.1  
      Input Format . . . . . Monaural

MIDI Output device driver(s) capabilities (see Compaq for technical support)

10     Product Name (Driver) . . . . . ESFM Synthesis (220)  
      Company Name . . . . . ESS Technology  
      Audio Source . . . . . FM Synthesizer  
      Product Identifier . . . . . 4  
      Driver Version . . . . . 4.4  
      Volume Control . . . . . Supported  
15     Voices supported . . . . . 18  
      Simultaneous notes supported . . 18

MIDI Output device driver(s) capabilities (see Compaq for technical support)

20     Product Name (Driver) . . . . . ESS MPU-401  
      Company Name . . . . . ESS Technology  
      Audio Source . . . . . MIDI Hardware Port  
      Product Identifier . . . . . 9  
      Driver Version . . . . . 4.4  
      Volume Control . . . . . Supported

MIDI Input device driver(s) capabilities (see Compaq for technical support)

25     Product Name (Driver) . . . . . ESS MPU-401  
      Company Name . . . . . ESS Technology  
      Product Identifier . . . . . 10  
      Driver Version . . . . . 4.4

Auxiliary Audio device driver(s) capabilities (see Compaq for technical support)

30     Product Name (Driver) . . . . . ESS AudioDrive Line-In (220)  
      Company Name . . . . . ESS Technology  
      Audio Source . . . . . Auxiliary Input Jacks  
      Product Identifier . . . . . 3  
      Driver Version . . . . . 4.4  
35     Volume Control . . . . . Separate left and right control

40     Product Name (Driver) . . . . . ESS AudioDrive CD-Audio (220)  
      Company Name . . . . . ESS Technology  
      Product Identifier . . . . . 8  
      Driver Version . . . . . 4.4  
      Volume Control . . . . . Separate left and right control

Windows

45     Windows Version . . . . . 95  
      Revision . . . . . 4.0



Build . . . . . 67109975  
Windows directory . . . . . C:\WINDOWS  
Windows system directory . . . . C:\WINDOWS\SYSTEM

Windows Memory Information

5    Total Physical Memory . . . . 33054 Kbytes  
     Free Physical Memory . . . . 0 Kbytes  
     Total Virtual Memory . . . . 2143289 Kbytes  
     Free Virtual Memory . . . . 2053373 Kbytes

10    Architecture

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PCI Devices Information

15    Signature . . . . . PCI  
     Config Mechanism #1 . . . . . Supported  
     Config Mechanism #2 . . . . . Not Supported  
     Spec Cycle for Config #1 . . . . . Supported  
     Spec Cycle for Config #2 . . . . . Not Supported  
     BIOS Interface Version . . . . . 2.10  
20    Last PCI Bus Number . . . . . 0  
     Number of PCI Devices . . . . . 2  
  
     Bus Number . . . . . 0  
     Device Number . . . . . 13  
     Function Number . . . . . 0  
25    Slot Number . . . . . 0  
     Vendor ID . . . . . 5333h  
     Device ID . . . . . 8812h  
     Revision ID . . . . . 43h  
     Device Type . . . . . VGA Compatible Controller  
     Programming Interface . . . . . 0  
30    Expansion ROM Base Address . . . . . FFFF0000h  
     IRQ Line . . . . . 11  
     IRQ Pin . . . . . INTA#  
     Memory Address Base . . . . . 40000000h  
     Memory Address Length . . . . . 4000000h  
  
35    Bus Number . . . . . 0  
     Device Number . . . . . 14  
     Function Number . . . . . 1  
     Slot Number . . . . . 0  
40    Vendor ID . . . . . E11h  
     Device ID . . . . . AE33h  
     Revision ID . . . . . 3h  
     Device Type . . . . . IDE Controller  
     Programming Interface . . . . . 234  
     Expansion ROM Base Address . . . . . 0h  
45    IRQ Line . . . . . 14  
     IRQ Pin . . . . . INTA#  
     IO Address Base . . . . . 0h

IO Address Length . . . . . 8h  
 IO Address Base . . . . . 0h  
 IO Address Length . . . . . 4h  
 IO Address Base . . . . . 0h  
 5 IO Address Length . . . . . 4h

Does system have PCMCIA capabilities . . Yes

#### Health

10 Temperature . . . . . Normal  
 Does ROM have embedded diagnostics . . No

#### Miscellaneous

15 \*\*\*\*\* Dump of C:\SYSTEM.SAV\INFO.BOM (4242 Bytes) \*\*\*\*\*  
 \*\*\*\*\* Last modified on: 1/31/97, 0:00:00AM \*\*\*\*\*  
 SKU Number: 315650-001

20 [Info]  
 SkuNumber=315650-001 Rev 100  
 BomID=50000 Rev 1

[Zips]  
 File1=138782-00A Rev 2, 12 MB System - 2.0 Gb Primary - 2.0 Gb Secondary - 0 Mb  
 25 File2=138701-00A Rev 33, QTR Star Startup [XXXXXX XX] Ver 1.00 Rev 1 Ext 1 Int 2  
 File3=138703-00A Rev 31, Windows 95 OSR2 [WIN40 US] Ver 4.00 Rev 2 Ext 1 Int 1  
 File4=138740-00A Rev 43, Star T Config [WIN40 US] Ver 1.00 Rev 1 Ext 3 Int 1  
 30 File5=138757-00A Rev 31, Dynamic Floppy QFE [WIN40 US] Ver 4.00.1112 Rev 1 Ext 2 Int 1  
 File6=138747-00A Rev 32, Universal Serial Bus SR2 [WIN40 US] Ver 1.00 Rev 1 Ext 1 Int 2  
 35 File7=138745-00A Rev 32, MS DirectX Drivers [WIN40 US] Ver 3.0A Rev 2 Ext 1 Int 2  
 File8=138758-00A Rev 42, Windows 95 CONFIG [WIN40 XX] Ver 2.00 Rev 1 Ext 2 Int 7  
 File9=\US\WIN40\PWR95\_B1.EXE, 138751-00A Rev 32, Power Management Win95 [WIN40 US] Ver 2.01 Rev 2 Ext 1 Int 1  
 40 File10=\US\SEC32\_C2.EXE, 138737-00A Rev 34, Security 32, Win95 [WIN40 US] Ver 1.10 Rev 3 Ext 2 Int 1  
 File11=\GLOBAL\WIN40\DSVD2.EXE, 138748-00A Rev 31, DSVD NetMeeting [WIN40 US] Ver 1.20 Rev 1 Ext 3 Int 1  
 45 File12=\US\PK32\_B2.EXE, 138736-00A Rev 36, Programmable Keys [XXXXXX US] Ver 1.10 Rev 2 Ext 2 Int 5  
 File13=\US\WIN40\USTELE95.EXE, 138760-00A Rev 32, Telephony Modem Support [WIN40 US] Ver 2.16 Rev 1 Ext 2 Int 1

File14=\GLOBAL\WIN40\MEDIAM.EXE, 138750-00A Rev 31, Mediamatix MPEG [WIN40  
 US] Ver 2.00.03 Rev 2 Ext 1 Int 1  
 File15=\GLOBAL\WIN40\FLASH.EXE, 138746-00A Rev 31, Intel Flash [WIN40 US] Ver  
 1.00 Rev 1 Ext 2 Int 1  
 5 File16=\US\WIN40\USAPPAL.EXE, 138755-00A Rev 31, Appaloosa [WIN40 US] Ver  
 1.20 Rev 1 Ext 6 Int 1  
 File17=138812-00A Rev 32, MS Internet Explorer for Win95 - APL [WIN40 US] Ver  
 4.00 Rev 1 Ext 1 Int 1  
 10 File18=\US\WIN40\DTM95\_D2.EXE, 138739-00A Rev 31, Insight Management [WIN40  
 US] Ver 3.20 Rev 4 Ext 2 Int 1  
 File19=\US\WIN40\USFRESH.EXE, 138749-00A Rev 31, Refresh Rate, S3 DSPLY  
 [WIN40 US] Ver 1.03.08 Rev 1 Ext 1 Int 1  
 File20=\US\USMONCON.EXE, 138735-00A Rev 31, Monitor Config Utility [XXXXX US]  
 Ver 1.00 Rev 1 Ext 4 Int 1  
 15 File21=\GLOBAL\CPQNS.EXE, 138734-00A Rev 31, Compaq Network Support [XXXXX  
 XX] Ver 1.00 Rev 11 Ext 1 Int 1  
 File22=\US\WIN40\USRMSPT.EXE, 138752-00A Rev 31, MS-DOS Real Mode [WIN40 US]  
 Ver 1.00 Rev 1 Ext 3 Int 1  
 20 File23=\US\WIN40\US4WDIAG.EXE, 138742-00A Rev 31, Diagnostics For Windows  
 [WIN40 US] Ver 1.20 Rev 2 Ext 1 Int 1  
 File24=\US\STREF\_B4.EXE, 138730-00A Rev 34, Star T Help [XXXXX US] Ver 1.00  
 Rev 2 Ext 4 Int 3  
 File25=\US\STOPT\_B1.EXE, 138731-00A Rev 34, Star T Options [XXXXX US] Ver  
 1.00 Rev 2 Ext 1 Int 3  
 25 File26=\US\WIN40\USSCGD4.EXE, 138743-00A Rev 31, Safety and Comfort Guide  
 [WIN40 US] Ver 3.0 Rev 3 Ext 1 Int 1  
 File27=\GLOBAL\WIN40\POINTCST.EXE, 138756-00A Rev 31, Pointcast [WIN40 US]  
 Ver 1.38 Rev 2 Ext 2 Int 1  
 30 File28=\US\WIN40\USCOLT.EXE, 138754-00A Rev 31, Colt Modem Tester [WIN40 US]  
 Ver 1.09 Rev 1 Ext 4 Int 1  
 File29=\US\WIN40\USPEDIT.EXE, 138761-00A Rev 31, MS Policy Editor [WIN40 US]  
 Ver 1.00 Rev 2 Ext 1 Int 1  
 35 File30=138738-00A Rev 41, CIA TOOLS [XXXXX XX] Ver 3.01 Rev 1 Ext 2 Int 2  
 File31=138829-00A Rev 33, A4TOOLS [WIN40 XX] Ver 1.10 Rev 1 Ext 2 Int 2  
 File32=138728-00A Rev 32, Diags PC [XXXXX XX] Ver 10.19 Rev 1 Ext 2 Int 2  
 File33=138729-00A Rev 31, F10 Setup [XXXXX US] Ver 2.00 Rev 8 Ext 2 Int 1  
 File34=315650-001 Rev 100, INFO.BOM component  
  
 [US.WIN40]  
 Defaults=US,USA  
 40 File1=138701-00A Rev 33  
 File2=138703-00A Rev 31  
 File3=138740-00A Rev 43  
 File4=138757-00A Rev 31  
 45 File5=138747-00A Rev 32  
 File6=138745-00A Rev 32  
 File7=138758-00A Rev 42  
 File8=\US\WIN40\PWR95\_B1.EXE  
 File9=\US\SEC32\_C2.EXE  
 File10=\GLOBAL\WIN40\DSVD2.EXE  
 50 File11=\US\PK32\_B2.EXE  
 File12=\US\WIN40\USTELE95.EXE

File13=\GLOBAL\WIN40\MEDIAM.EXE  
 File14=\GLOBAL\WIN40\FLASH.EXE  
 File15=\US\WIN40\USAPPAL.EXE  
 File16=138812-00A Rev 32  
 5 File17=\US\WIN40\DTM95\_D2.EXE  
 File18=\US\WIN40\USFRESH.EXE  
 File19=\US\USMONCON.EXE  
 File20=\GLOBAL\CPQNS.EXE  
 File21=\US\WIN40\USRMSPT.EXE  
 10 File22=\US\WIN40\US4WDIAG.EXE  
 File23=\US\STREF\_B4.EXE  
 File24=\US\STOPT\_B1.EXE  
 File25=\US\WIN40\USSCGD4.EXE  
 File26=\GLOBAL\WIN40\POINTCST.EXE  
 15 File27=\US\WIN40\USCOLT.EXE  
 File28=\US\WIN40\USPEDIT.EXE  
 File29=138738-00A Rev 41  
 File30=138829-00A Rev 33  
 File31=138728-00A Rev 32  
 20 File32=138729-00A Rev 31

25 System Configuration Memory  
 00 - 0F : 42 00 07 00 10 00 06 08 09 98 26 02 50 80 00 00  
 10 - 1F : 40 F2 F0 10 03 80 02 00 3C 41 00 00 00 FF 63 00  
 20 - 2F : 00 00 00 00 7E 29 00 40 00 97 00 45 80 00 06 D9  
 30 - 3F : 00 3C 19 80 01 11 XX XX XX XX XX XX

BIOS Data Area  
 40:0000 : F8 03 F8 02 E8 03 00 00 78 03 00 00 00 00 13 02  
 40:0010 : 27 C6 01 80 02 00 00 00 00 00 1E 00 1E 00 00 00  
 40:0020 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  
 30 40:0030 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00  
 40:0040 : 50 80 70 3F 01 00 00 AE 10 6D 80 00 FF FF 00 00  
 40:0050 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  
 40:0060 : 00 00 00 D4 03 29 30 E0 FF 00 20 FF 16 21 0A 00  
 40:0070 : 00 00 00 12 00 01 08 01 14 14 14 3C 01 01 01 01  
 35 40:0080 : 1E 00 3E 00 2F 10 00 E0 09 11 0B 01 50 00 00 01  
 40:0090 : 17 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  
 40:00A0 : 00 00 00 00 00 00 00 00 7B 28 00 C0 00 00 00 00  
 40:00B0 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  
 40:00C0 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  
 40 40:00D0 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  
 40:00E0 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  
 40:00F0 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Interrupt Vector Table  
 45 00 - 03 : 00C9:000B C0FF:F508 0F65:0016 0000:0224  
 04 - 07 : 0070:0465 F000:FF54 F000:331E F000:9BD0  
 08 - 0B : CC00:0000 0F65:0028 F000:9BD0 F000:9BD0  
 0C - 0F : F000:9BD0 F000:9BD0 0F65:009A 0070:0465  
 10 - 13 : CC70:0007 F000:F84D F000:F841 FD5E:2537

5	14 - 17 :	F000:E739	0254:0240	0070:042D	029D:0A28
	18 - 1B :	F000:49C5	1026:002F	F000:FE6E	029D:0604
	1C - 1F :	CC00:001D	F000:F0A4	0000:0522	C000:5D06
	20 - 23 :	00C9:0FA8	105A:042F	FCB2:2FF7	FD7B:2367
	24 - 27 :	1148:0003	00C9:0FBC	00C9:0FC6	00C9:0FD0
10	28 - 2B :	00C9:106C	0070:0466	029D:05B4	00C9:106C
	2C - 2F :	00C9:106C	00C9:106C	102B:0000	105A:03F6
	30 - 33 :	C90F:E4EA	F000:9B00	00C9:106C	113A:0001
	34 - 37 :	00C9:106C	00C9:106C	00C9:106C	00C9:106C
	38 - 3B :	00C9:106C	00C9:106C	00C9:106C	00C9:106C
15	3C - 3F :	00C9:106C	00C9:106C	00C9:106C	00C9:106C
	40 - 43 :	F000:CEB6	F000:E801	F000:F065	C000:7032
	44 - 47 :	F000:9BD0	F000:9BD0	F000:E401	F000:9BD0
	48 - 4B :	F000:9BD0	F000:9BD0	F000:9BD0	FD4C:2657
	4C - 4F :	F000:9BD0	F000:9BD0	F000:9BD0	0070:04FC
20	50 - 53 :	F000:9BD0	F000:9BD0	F000:9BD0	F000:9BD0
	54 - 57 :	F000:9BD0	F000:9BD0	F000:9BD0	F000:9BD0
	58 - 5B :	F000:9BD0	F000:9BD0	F000:9BD0	F000:9BD0
	5C - 5F :	1147:000D	F000:9BD0	F000:9BD0	F000:9BD0
	60 - 63 :	0000:0000	0000:0000	0000:0000	0000:0000
25	64 - 67 :	0000:0000	0000:0000	0000:0000	113B:0040
	68 - 6B :	F000:9BD0	F000:9BD0	F000:9BD0	F000:9BD0
	6C - 6F :	F000:9BD0	C000:39E6	F000:9BD0	F000:9BD0
	70 - 73 :	0F65:0035	F000:9C1F	F000:9BD0	F000:9BD0
	74 - 77 :	0F65:00E2	F000:9C28	0F65:00FA	F000:9BD0
30	78 - 7B :	0000:0000	0000:0000	0000:0000	0000:0000
	7C - 7F :	0000:0000	0000:0000	0000:0000	0000:0000
	80 - 83 :	0000:0000	0000:0000	0000:0000	0000:0000
	84 - 87 :	0000:0000	0000:0000	0000:0000	0000:0000
	88 - 8B :	0000:0000	0000:0000	0000:0000	0000:0000
35	8C - 8F :	0000:0000	0000:0000	0000:0000	0000:0000
	90 - 93 :	0000:0000	0000:0000	0000:0000	0000:0000
	94 - 97 :	0000:0000	0000:0000	0000:0000	0000:0000
	98 - 9B :	0000:0000	0000:0000	0000:0000	0000:0000
	9C - 9F :	0000:0000	0000:0000	0000:0000	0000:0000
40	A0 - A3 :	0000:0000	0000:0000	0000:0000	0000:0000
	A4 - A7 :	0000:0000	0000:0000	0000:0000	0000:0000
	A8 - AB :	0000:0000	0000:0000	0000:0000	0000:0000
	AC - AF :	0000:0000	0000:0000	0000:0000	0000:0000
	B0 - B3 :	0000:0000	0000:0000	0000:0000	0000:0000
45	B4 - B7 :	0000:0000	0000:0000	0000:0000	0000:0000
	B8 - BB :	0000:0000	0000:0000	0000:0000	0000:0000
	BC - BF :	0000:0000	0000:0000	0000:0000	0000:0000
	C0 - C3 :	0000:0000	0000:0000	0000:0000	0000:0000
	C4 - C7 :	0000:0000	0000:0000	0000:0000	0000:0000
50	C8 - CB :	0000:0000	0000:0000	0000:0000	0000:0000
	CC - CF :	0000:0000	0000:0000	0000:0000	0000:0000
	D0 - D3 :	0000:0000	0000:0000	0000:0000	0000:0000
	D4 - D7 :	0000:0000	0000:0000	0000:0000	0000:0000
	D8 - DB :	0000:0000	0000:0000	0000:0000	0000:0000
	DC - DF :	0000:0000	0000:0000	0000:0000	0000:0000
	E0 - E3 :	0000:0000	0000:0000	0000:0000	0000:0000

5

E4 - E7 :	0000:0000	0000:0000	0000:0000	0000:0000
E8 - EB :	0000:0000	0000:0000	0000:0000	0000:0000
EC - EF :	0000:0000	0000:0000	0000:0000	0000:0000
F0 - F3 :	0000:0000	0000:0000	0000:0000	0000:0000
F4 - F7 :	0000:0000	0000:0000	0000:0000	0000:0000
F8 - FB :	0000:0000	0000:0000	0000:0000	0000:0000
FC - FF :	0000:0000	0000:0000	0000:0000	0000:0000

Is System Information Table supported . . . . . Yes  
Is Desktop Management Interface supported . . . . . No

10

SIT Header Record  
21 53 49 54

#### Power Conservation Record

15

01 11 FF 2F FB 02 01 48 01 00 88 00 22 00 00 00  
B0 C4 04

20

SIT Record Id . . . . . 1 (01h)  
SIT Record Length . . . . . 17 (11h)  
Is system standby supported . . . . . Yes  
Is hard drive timeout supported . . . . . Yes  
Is screen save supported . . . . . Yes

25

Are the power conservation beeps controllable . . . . . Yes  
Is system idle timeout supported . . . . . Yes  
Is hibernation supported . . . . . Yes  
Is the processor speed configurable . . . . . Yes  
Is the volume controllable . . . . . Yes  
Is maximum brightness controllable . . . . . Yes  
Is advanced power management supported . . . . . Yes

30

Are popups supported . . . . . Yes  
Is the size of the popups changeable . . . . . No  
Is the location of the popups changeable . . . . . Yes  
Is desktop power management supported . . . . . No  
Is the LED blink controllable . . . . . No

35

Can PCMCIA slot be turned off during runtime . . . . . Yes  
Can PCMCIA slot be controlled during standby . . . . . Yes  
Does hibernation only occur at lowbat . . . . . No

40

Is portable AC power management supported . . . . . Yes  
Is monitor off mode supported . . . . . Yes  
Is AC hard drive timeout supported . . . . . Yes  
Is AC screen save supported . . . . . Yes

45

Is software power down available . . . . . Yes  
Is a modem installed in the option slot . . . . . No  
Are screen save and system idle the same . . . . . No  
Configurable processor speeds . . . . . 1 and 1/2  
Is desktop suspend state supported . . . . . No  
Quick energy save support type . . . . . Not supported  
SMI Offset . . . . . 0 (00h)  
SMI Segment . . . . . 45056 (B000h)  
Number of Batteries . . . . . 4

SMI Generation scheme . . . . . Int 10  
 Number of programmable keys . . . . . 4

# System Standby Timeout Record

5      02 12 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D  
       0E 0F 10 11

10      SIT Record Id . . . . . 2 (02h)  
       SIT Record Length . . . . . 18 (12h)  
       Entry # 0 . . . . . 0 (00h) minute(s)  
       Entry # 1 . . . . . 1 (01h) minute(s)  
       Entry # 2 . . . . . 2 (02h) minute(s)  
       Entry # 3 . . . . . 3 (03h) minute(s)  
       Entry # 4 . . . . . 4 (04h) minute(s)  
       Entry # 5 . . . . . 5 (05h) minute(s)  
       Entry # 6 . . . . . 6 (06h) minute(s)  
       Entry # 7 . . . . . 7 (07h) minute(s)  
       Entry # 8 . . . . . 8 (08h) minute(s)  
       Entry # 9 . . . . . 9 (09h) minute(s)  
       Entry # 10 . . . . . 10 (0Ah) minute(s)  
       Entry # 11 . . . . . 11 (0Bh) minute(s)  
       Entry # 12 . . . . . 12 (0Ch) minute(s)  
       Entry # 13 . . . . . 13 (0Dh) minute(s)  
       Entry # 14 . . . . . 14 (0Eh) minute(s)  
       Entry # 15 . . . . . 15 (0Fh) minute(s)  
       Entry # 16 . . . . . 16 (10h) minute(s)  
       Entry # 17 . . . . . 17 (11h) minute(s)

# Screen Save/Monitor Timeout Record

03 20 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D  
 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D  
 1E 1F

30      SIT Record Id . . . . . 3 (03h)  
       SIT Record Length . . . . . 32 (20h)  
       Entry # 0 . . . . . 0 (00h) minute(s)  
       Entry # 1 . . . . . 1 (01h) minute(s)  
       Entry # 2 . . . . . 2 (02h) minute(s)  
       Entry # 3 . . . . . 3 (03h) minute(s)  
       Entry # 4 . . . . . 4 (04h) minute(s)  
       Entry # 5 . . . . . 5 (05h) minute(s)  
       Entry # 6 . . . . . 6 (06h) minute(s)  
       Entry # 7 . . . . . 7 (07h) minute(s)  
       Entry # 8 . . . . . 8 (08h) minute(s)  
       Entry # 9 . . . . . 9 (09h) minute(s)  
       Entry # 10 . . . . . 10 (0Ah) minute(s)  
       Entry # 11 . . . . . 11 (0Bh) minute(s)  
       Entry # 12 . . . . . 12 (0Ch) minute(s)

	Entry # 13	. . . . .	13 (0Dh) minute(s)
	Entry # 14	. . . . .	14 (0Eh) minute(s)
	Entry # 15	. . . . .	15 (0Fh) minute(s)
5	Entry # 16	. . . . .	16 (10h) minute(s)
	Entry # 17	. . . . .	17 (11h) minute(s)
	Entry # 18	. . . . .	18 (12h) minute(s)
	Entry # 19	. . . . .	19 (13h) minute(s)
	Entry # 20	. . . . .	20 (14h) minute(s)
10	Entry # 21	. . . . .	21 (15h) minute(s)
	Entry # 22	. . . . .	22 (16h) minute(s)
	Entry # 23	. . . . .	23 (17h) minute(s)
	Entry # 24	. . . . .	24 (18h) minute(s)
	Entry # 25	. . . . .	25 (19h) minute(s)
15	Entry # 26	. . . . .	26 (1Ah) minute(s)
	Entry # 27	. . . . .	27 (1Bh) minute(s)
	Entry # 28	. . . . .	28 (1Ch) minute(s)
	Entry # 29	. . . . .	29 (1Dh) minute(s)
	Entry # 30	. . . . .	30 (1Eh) minute(s)
	Entry # 31	. . . . .	31 (1Fh) minute(s)

20 Hard Drive Timeout Record

04	12	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D
0E	0F	10	11												

	SIT Record Id	. . . . .	4 (04h)
	SIT Record Length	. . . . .	18 (12h)
25	Entry # 0	. . . . .	0 (00h) minute(s)
	Entry # 1	. . . . .	1 (01h) minute(s)
	Entry # 2	. . . . .	2 (02h) minute(s)
	Entry # 3	. . . . .	3 (03h) minute(s)
30	Entry # 4	. . . . .	4 (04h) minute(s)
	Entry # 5	. . . . .	5 (05h) minute(s)
	Entry # 6	. . . . .	6 (06h) minute(s)
	Entry # 7	. . . . .	7 (07h) minute(s)
	Entry # 8	. . . . .	8 (08h) minute(s)
	Entry # 9	. . . . .	9 (09h) minute(s)
35	Entry # 10	. . . . .	10 (0Ah) minute(s)
	Entry # 11	. . . . .	11 (0Bh) minute(s)
	Entry # 12	. . . . .	12 (0Ch) minute(s)
	Entry # 13	. . . . .	13 (0Dh) minute(s)
40	Entry # 14	. . . . .	14 (0Eh) minute(s)
	Entry # 15	. . . . .	15 (0Fh) minute(s)
	Entry # 16	. . . . .	16 (10h) minute(s)
	Entry # 17	. . . . .	17 (11h) minute(s)

Security Features Record

05	03	04	BE	78
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	SIT Record Id . . . . .	5 (05h)
	SIT Record Length . . . . .	3 (03h)
	Is diskette drive control supported . . . . .	Yes
	Is diskette drive write control supported . . . . .	Yes
5	Is serial port control supported . . . . .	Yes
	Is parallel port control supported . . . . .	Yes
	Is PCMCIA slot control supported . . . . .	Yes
	Is SafeStart virus detection supported . . . . .	No
	Password type . . . . .	7 character
10	Is locking of password bytes supported . . . . .	Yes
	Allow changeable features if setup password . . . . .	Yes

# Processor/Memory/Cache Record

```

06 15 0A 01 07 20 00 06 10 00 90 00 00 00 00 00
00 00 00 00 00 00 00

```

15	SIT Record Id . . . . .	6 (06h)
	SIT Record Length . . . . .	21 (15h)
	Processor speed . . . . .	266 MHz
	L2 Cache	
	Cache installed . . . . .	Installed
20	Cache option . . . . .	Optional/Permanent
	Write policy . . . . .	Write back
	Size . . . . .	512 Kbytes
	Speed . . . . .	0 ns
	Total soldered memory . . . . .	16 MB
25	Maximum memory installable . . . . .	144 MB
	L3 Cache	
	Processor	
	Cache option . . . . .	Not available
	Cache installed . . . . .	Not installed
30	Write policy . . . . .	Write through
	Size . . . . .	0 Kbytes
	Speed . . . . .	0 ns
	Processor 2	
	Cache option . . . . .	Not available
35	Cache installed . . . . .	Not installed
	Write policy . . . . .	Write through
	Size . . . . .	0 Kbytes
	Speed . . . . .	0 ns
	Processor 3	
40	Cache option . . . . .	Not available
	Cache installed . . . . .	Not installed
	Write policy . . . . .	Write through
	Size . . . . .	0 Kbytes
	Speed . . . . .	0 ns
45	Processor 4	
	Cache option . . . . .	Not available
	Cache installed . . . . .	Not installed
	Write policy . . . . .	Write through

Size . . . . . 0 Kbytes  
 Speed . . . . . 0 ns  
 Processor designer . . . . . 0

5 General System Peripheral and Input Device Information Record  
 07 1D E7 11 82 33 33 30 35 3A 3F 04 11 00 12 1E  
 24 12 27 01 00 AC 00 01 00 00 01 24 13 F0 F0

SIT Record Id . . . . . 7 (07h)  
 SIT Record Length . . . . . 29 (1Dh)  
 10 Does ROM support F10 partition . . . . . Yes  
 Is the System ROM flashable . . . . . Yes  
 Backup copy of CMOS supported . . . . . No  
 Is on-board bootable SCSI supported . . . . . No  
 Does BIOS support hard drive DMA . . . . . Yes  
 Does system have PCMCIA capabilities . . . . . Yes  
 15 Does system support enhanced IDE DMA . . . . . Yes  
 Does ROM have CD-ROM boot support . . . . . Yes  
 Does system ROM have a boot block . . . . . No  
 Does ROM have embedded diagnostics . . . . . No  
 Does ROM support POST speedup feature . . . . . Yes  
 20 Is TV Tuner Installed . . . . . No  
 Is El Torito Standard CD-ROM boot available . . . . . No  
 Form Factor . . . . . Laptop notebook or sub-notebook  
 Soft drive type 65  
 25 Is soft drive type supported . . . . . Yes  
 Number of bytes of soft drive type data . . . . . 5 bytes  
 Location of soft drive type data . . . . . Extended System Configuration Memory  
 What is starting address of the data . . . . . 48 (30h)  
 30 Soft drive type 66  
 Is soft drive type supported . . . . . Yes  
 Number of bytes of soft drive type data . . . . . 5 bytes  
 Location of soft drive type data . . . . . Extended System Configuration Memory  
 35 What is starting address of the data . . . . . 53 (35h)  
 Soft drive type 68  
 Is soft drive type supported . . . . . Yes  
 Number of bytes of soft drive type data . . . . . 5 bytes  
 Location of soft drive type data . . . . . Extended System Configuration Memory  
 40 What is starting address of the data . . . . . 58 (3Ah)  
 Soft drive type 15  
 Is soft drive type supported . . . . . Yes  
 Number of bytes of soft drive type data . . . . . 5 bytes  
 45 Location of soft drive type data . . . . . Extended System Configuration Memory  
 What is starting address of the data . . . . . 63 (3Fh)  
 Panel ID . . . . . 4

	Number of software configurable serial ports . . .	1
	Is the System ROM socketed . . . . .	No
	Integrated monitor and system board . . . . .	No
	Type of special modem installed . . . . .	0
5	Is EPP mode supported . . . . .	No
	Client Management support level . . . . .	Enhanced
	Does drive 0 support DFP . . . . .	Yes
	Does drive 1 support DFP . . . . .	No
	Does drive 2 support DFP . . . . .	No
10	Does drive 3 support DFP . . . . .	No
	PCI bus master enable/disable	
	CMOS offset . . . . .	30
	Bit location . . . . .	4
	CMOS type . . . . .	Non-Volatile RAM
15	VGA palette snoop enable/disable	
	CMOS offset . . . . .	18
	Bit location . . . . .	7
	CMOS type . . . . .	Non-Volatile RAM
	Are multiple PCI busses supported . . . . .	Yes
20	I2C I/O Address . . . . .	44032
	Bit position of I2C SCL Signal . . . . .	0
	Bit position of I2C SDA Signal . . . . .	0
	I2C start/stop conditions . . . . .	Normal
	ATAPI device information	
25	First logical device . . . . .	Not Installed
	Second logical device . . . . .	CD-ROM Drive
	Third logical device . . . . .	Not Installed
	Fourth logical device . . . . .	Not Installed
	3-D audio support	
30	Audio device . . . . .	Not present
	Tone control device . . . . .	Not present
	Is Quick Boot Supported . . . . .	Yes
	Are Stick Ctrl, Alt, Shift Keys supported . . .	No
	Are Microsoft scan codes supported . . . . .	No
35	Is power inhibit supported . . . . .	No
	Back to back I/O delay Index 0 . . . . .	61459 (F013h)
	Back to back I/O delay Index 1 . . . . .	2288 (8F0h)

#### Memory Module Information Record

08 09 02 00 00 46 03 01 10 46 03

40	SIT Record Id . . . . .	8 (08h)
	SIT Record Length . . . . .	9 (09h)
	Number of existing memory sockets . . . . .	2
	System socket number . . . . .	0
	Expansion board slot number . . . . .	0
45	Amount of memory in MB . . . . .	0 MB
	Is parity supported . . . . .	No
	System socket number . . . . .	1
	Expansion board slot number . . . . .	0

Amount of memory in MB . . . . . 16 MB  
 Speed of memory in ns . . . . . 70 ns  
 Memory Form Factor . . . . . DIMM  
 Is parity supported . . . . . No

5 Timeout Default Value Record

09 0A 03 01 01 4B 64 05 02 03 4B 64

SIT Record Id . . . . . 9 (09h)  
 SIT Record Length . . . . . 10 (0Ah)  
 Conservation parameters when power conservation level is set to High  
 10 Standby . . . . . 3 minute(s) (03h)  
 Hard drive or system idle timeout . . . . . 1 minute(s) (01h)  
 Screen save/monitor timeout . . . . . 1 minute(s) (01h)  
 Maximum brightness . . . . . 75 % (4Bh)  
 Processor speed . . . . . 100 % (64h)

15 Conservation parameters when power conservation level is set to Medium  
 Standby . . . . . 5 minute(s) (05h)  
 Hard drive or system idle timeout . . . . . 2 minute(s) (02h)  
 Screen save/monitor timeout . . . . . 3 minute(s) (03h)  
 Maximum brightness . . . . . 75 % (4Bh)  
 20 Processor speed . . . . . 100 % (64h)

CMOS and NVRAM Information Record

0A 05 7F 00 3F 00 01

SIT Record Id . . . . . 10 (0Ah)  
 SIT Record Length . . . . . 5 (05h)  
 25 Number of bytes of NVRAM or ECMOS . . . . . 127 (7Fh)  
 Number of bytes of CMOS . . . . . 63 (3Fh)  
 NVRAM access type . . . . . Index:820h, Data:800h-81fh

Extended Disk Support Record

0E 02 A1 DE

30 SIT Record Id . . . . . 14 (0Eh)  
 SIT Record Length . . . . . 2 (02h)  
 Pointer to extended disk table . . . . . 56993

Product Name Header Record

10 0E 41 72 6D 61 64 61 20 37 37 39 32 44 4D 00

35 SIT Record Id . . . . . 16 (10h)  
 SIT Record Length . . . . . 14 (0Eh)

Product Name (Driver)	Armada 7792DM
Version information for Compaq Diagnostics for Windows	
CPQDIAG.EXE	8/26/98 9:50:34AM
DL_DISK.DLL	8/26/98 10:04:00AM
DL_SCSI.DLL	8/26/98 10:04:10AM
DL_PAR.DLL	8/26/98 10:04:10AM
DL_SER.DLL	8/26/98 10:04:12AM
DL_AUDIO.DLL	8/26/98 10:03:58AM
DL_CPU.DLL	8/26/98 10:04:00AM
DL_INPUT.DLL	8/26/98 10:04:02AM
DL_MODEM.DLL	8/26/98 10:04:06AM
DL_VIDEO.DLL	8/26/98 10:04:14AM
DL_MEM.DLL	8/26/98 10:04:04AM

Further features which are contemplated as advantageous with the presently disclosed innovations are described in copending U.S. application \_\_\_\_\_, attorney docket number P98-2318, which is owned in common with the present application and has the same filing date as the present application, and which is hereby incorporated by reference.

### **Definitions:**

Following are short definitions of the usual meanings of some of the technical terms which are used in the present application. (However, those of ordinary skill will recognize whether the context requires a different meaning.) Additional definitions can be found in the standard technical dictionaries and journals.

- Hardware:** the physical, tangible components of a computer system.
- Operating system:** a set of programs controlling the operations of a computer system, such as assemblers or input and output facilities.
- Configuration:** the collection of internal settings that controls how hardware and software function.

## **Modifications and Variations**

As will be recognized by those skilled in the art, the innovative concepts described in the present application can be modified and varied over a tremendous range of applications, and accordingly the scope of patented subject matter is not limited by any of the specific exemplary teachings given.

In a preferred embodiment, the presently disclosed innovation is used on a computer running any of the Windows 95/98/NT/2000 operating systems. Any other operating system may be used with the present innovations.

The base and current computer hardware and operating system information is captured in ASCII text files using Compaq Diagnostics for Windows. Storage of the data in any format is within the contemplation of the invention.

The design builds on Compaq Diagnostics for Windows. However, any diagnostics program could be the foundation for the presently disclosed innovations.

The diagnostics program can be an operating system level program, or embedded diagnostics can be used.

The hardware and operating system configurations may be gathered more frequently than only at program installation and program execution. For instance, each time the hardware or operating system undergoes any configuration change, the new configuration is captured and recorded as an ASCII text file. Or, the system may run cpdiaga.exe at each startup, recording configuration changes. In embodiments where there are many sets of configurations stored, each configuration is time stamped so as to preserve a complete chronological record of configuration settings for the computer. Additionally, in embodiments that record configuration more frequently, each time

current configurations are recorded, the configurations could automatically be compared with the previous configurations, and only the changes captured in ASCII text files.

Information other than just hardware and operating system configurations can be captured by the program. Any readable information accessible to the program, be it an operating system level diagnostics program or an embedded diagnostics program, may be captured and used as a service tool. Software and DLL (Dynamic Link Library) versions could be checked. Anything stored in the Windows Registry or in any directory may also be accessed and used in servicing computers.

The amount of processing of the configuration data done by the diagnostics application can vary. The diagnostics application can merely gather and relay the configuration information, or it could perform some comparison. It could also filter the data, sending only the changes in configuration, or only send data about certain hardware or software.

Comparison and other processing of configuration data could occur at the user's computer locally, or it could be done remotely by a computer at the customer service site.

The program can prompt the user for input regarding the problem, or the data could automatically be sent without user input. Additionally, only the user input information might be sent, with or without the configuration data. These options can be made available as user selected options, or they may be made automatic so that the user need not initiate them.

It should also be noted that the disclosed innovative ideas are not limited only to systems based on an x86-compatible microprocessor, but can also be implemented in systems using 680x0, RISC, or other

processor architectures.

It should also be noted that the disclosed innovative ideas are not by any means limited to systems using a single-processor CPU, but can also be implemented in computers using multiprocessor architectures.

- 5 Additional general background, which helps to show the knowledge of those skilled in the art regarding the system context, and of variations and options for implementations, may be found in the following publications, all of which are hereby incorporated by reference. In particular, many details may be found in the books from
- 10 MindShare, Inc., including PROTECTED MODE SOFTWARE ARCHITECTURE, CARDBUS SYSTEM ARCHITECTURE, EISA SYSTEM ARCHITECTURE, ISA SYSTEM ARCHITECTURE, 80486 SYSTEM ARCHITECTURE, PENTIUM PROCESSOR SYSTEM ARCHITECTURE, PCMCIA SYSTEM ARCHITECTURE, PLUG AND PLAY SYSTEM ARCHITECTURE, PCI
- 15 SYSTEM ARCHITECTURE, USB SYSTEM ARCHITECTURE, and PENTIUM PRO PROCESSOR SYSTEM ARCHITECTURE, all of which are hereby incorporated by reference, and in the PENTIUM PROCESSOR FAMILY DEVELOPER'S MANUAL 1997, the MULTIPROCESSOR SPECIFICATION (1997), the INTEL ARCHITECTURE OPTIMIZATIONS MANUAL, the INTEL
- 20 ARCHITECTURE SOFTWARE DEVELOPER'S MANUAL, the PERIPHERAL COMPONENTS 1996 databook, the PENTIUM PRO PROCESSOR BIOS WRITER'S GUIDE (version 2.0, 1996), and the PENTIUM PRO FAMILY DEVELOPER'S MANUALS from Intel, all of which are hereby incorporated by reference.



## CLAIMS

What is claimed is:

- 1 1. A method of servicing a computer, the computer including hardware  
2 and an operating system, comprising the steps of:  
3 capturing base configuration data for the computer;  
4 capturing the current configuration data; and  
5 automatically comparing the base and current configuration data.
- 1 2. The method of Claim 1, wherein the configuration data relates to the  
2 hardware and operating system of the computer.
- 1 3. The method of Claim 1, wherein the base configuration data is  
2 captured and stored more than once before current configuration  
3 data is captured.
- 1 4. The method of Claim 1, wherein the configuration data is stored as  
2 an ASCII text file.
- 1 5. The method of Claim 1, wherein the base data is captured by a  
2 diagnostics program on the computer at the time the diagnostics  
3 program is installed.
- 1 6. The method of Claim 1, further comprising the step of highlighting  
2 the differences between the base and current configuration data.
- 1 7. The method of Claim 1, wherein the step of comparing is done at  
2 the user's computer.

1 8. The method of Claim 1, wherein the configuration data captured  
2 includes information on the computer's memory.

1 9. A method of servicing a computer, comprising the steps of:  
2 when there is a problem with the computer, running a diagnostic  
3 program that captures the configuration data of hardware and  
4 operating system on the computer;  
5 comparing the configuration data with a base set of configuration  
6 data; and  
7 sending configuration data to a remote computer.

1 10. The method of Claim 9, wherein the comparison is used to service  
2 the computer.

1 11. The method of Claim 9, further comprising the step of highlighting  
2 the differences between the base and current configuration data.

1 12. The method of Claim 9, wherein multiple sets of configuration data  
2 are captured and compared to each other and the base configura-  
3 tion.

1 13. The method of Claim 12, wherein all sets of configuration data are  
2 time stamped.

- 1 14. A software and hardware diagnostics architecture for a computer,  
2 comprising:  
3 a diagnostics program installed on the computer capable of captur-  
4 ing configuration data from the computer  
5 wherein when computer service procedures are initiated, the  
6 program captures a base set of configuration data, and later  
7 captures a current set of configuration data for comparison to  
8 the base set of configuration data, the comparison used to  
9 service the computer.
- 1 15. The architecture of Claim 14, wherein the configuration data  
2 relates to hardware and operating system settings on the comput-  
3 er.
- 1 16. The architecture of Claim 14, wherein the diagnostics program  
2 captures configuration data on installation and on at least one  
3 other occasion.
- 1 17. The architecture of Claim 14, wherein differences between the base  
2 and current configuration data are highlighted.
- 1 18. The architecture of Claim 14, wherein the base and current  
2 configuration data are stored in ASCII text files.
- 1 19. The architecture of Claim 14, wherein the configuration data  
2 captured is any data in the computer.

1 20. A computer, comprising:  
2 a diagnostics program installed on the computer capable of captur-  
3 ing current configuration data from the computer;  
4 stored base configuration data for the computer;  
5 wherein the current configuration data is compared to the base  
6 configuration data.

1 21. The computer of Claim 20, wherein the configuration data relates  
2 to hardware and operating system settings on the computer.

1 22. The computer of Claim 20, wherein a program other than the  
2 diagnostics program compares the base and current configuration  
3 data.

1 23. The computer of Claim 20, wherein the base data is captured when  
2 the diagnostics program is installed.

1 24. The computer of Claim 20, wherein the differences between the  
2 base and current configuration data are highlighted.

## ABSTRACT

A method of customer service that uses a program which captures the computer's hardware and operating system configuration when the program is installed, and also captures the hardware and operating  
5 system configuration upon request (when the user needs customer service help), and compares the two, highlighting differences.

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Run Compaq Diagnostics for Windows application (cpqdiag.exe) in a silent mode during installation to gather current hardware and operating system information in an ASCII text file called base.log in the \Windows\Cpqdiag\ directory.

step 102

Customer has a problem with the computer that requires customer service assistance.

step 104

Customer runs Compaq Diagnostics System Record tool (cpqdiaga.exe)

step 106

The Compaq Diagnostics System Record tool automatically runs Compaq Diagnostics for Windows in silent mode to gather the current computer hardware and operating system information in an ASCII text file called now.log.

step 108

Compaq Diagnostics System Record tool performs comarison of the hardware and operating system configuration files previously created by Compaq Diagnostics for Windows. The differences produced by the comparison are highlighted.

step 110

Figure 1

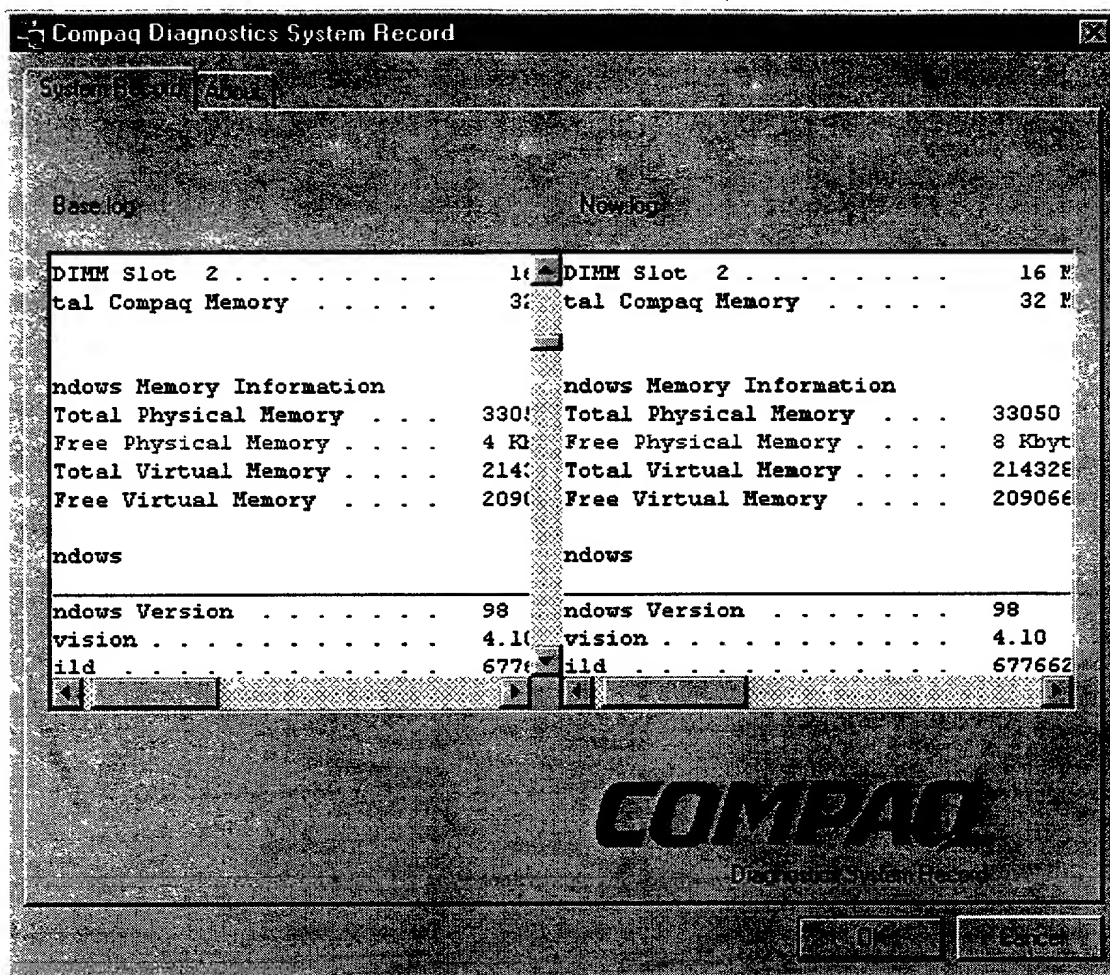


FIGURE 2

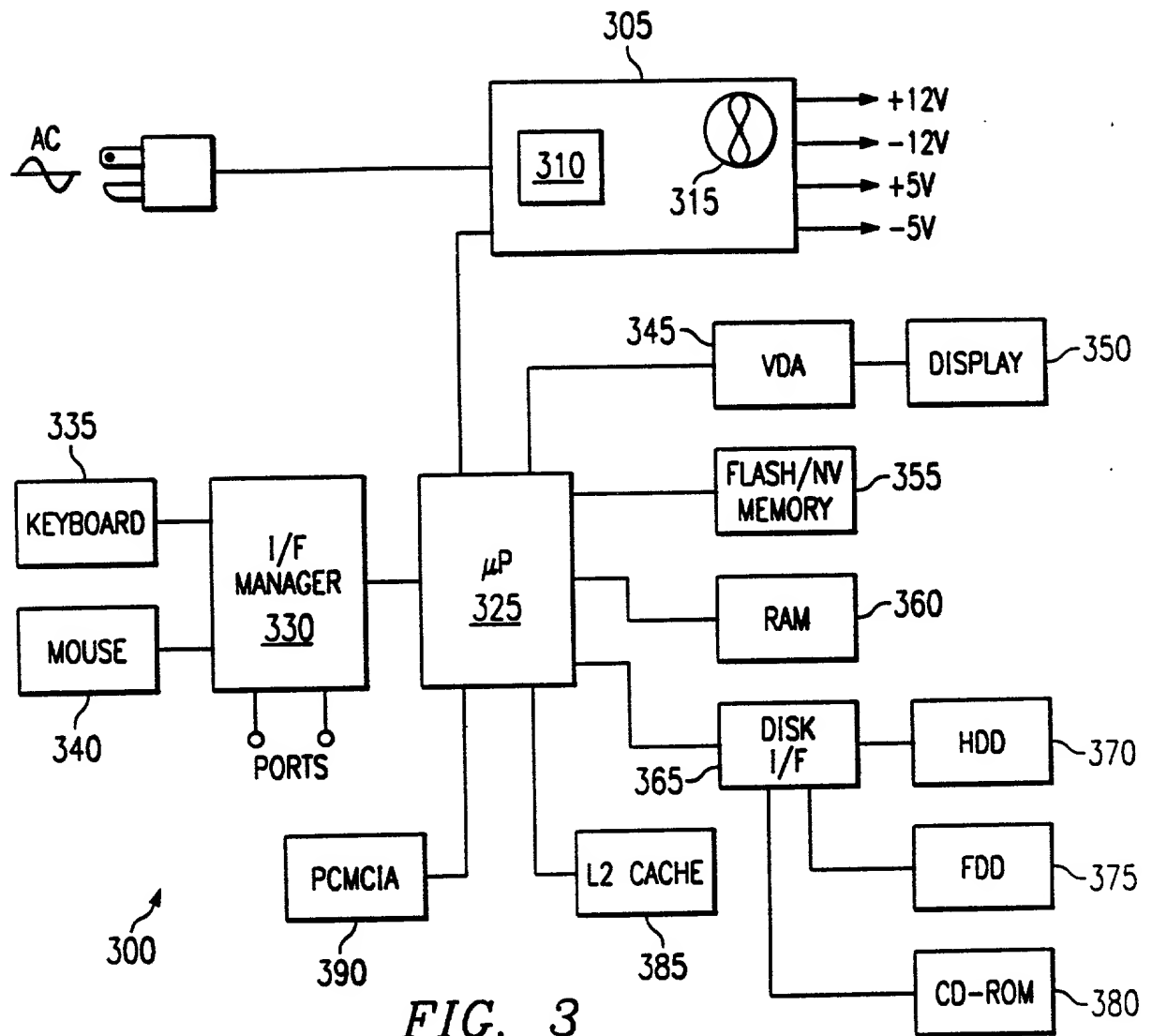


FIG. 3



**DECLARATION****SOLE/JOINT INVENTOR  
ORIGINAL**

As a below named inventor, I hereby declare that: my residence, post office address, and citizenship are as stated below next to my name. I believe I am the original, first, and sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**Automatic Capture and Comparison of Computer Configuration Data**

as described in the specification attached.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above; that I do not know and do not believe the same was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application; that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representative or assigns more than twelve months prior to this application; and that I acknowledge the duty to disclose information of which I am aware which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations § 1.56(a). Such information is material when it is not cumulative to information already of record or being made of record in the application, and

- (1) it establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
- (2) it refutes, or is inconsistent with, a position the applicant has taken or may take in:
  - (i) opposing an argument of unpatentability relied on by the Office, or
  - (ii) asserting an argument of patentability.

I hereby claim foreign priority benefits under Title 35, United States Code § 119 of any foreign application(s) for patent or inventor's certificates listed below and have also identified below any foreign application(s) having a filing date before that of the application(s) on which priority is claimed:

COUNTRY	APPLICATION NUMBER	DATE OF FILING	PRIORITY CLAIMED UNDER 35 USC 119
			<input type="checkbox"/> YES <input type="checkbox"/> NO

I hereby claim the benefit under Title 35 United States Code § 120 of any United States application(s) listed below and, insofar as any subject matter of any claim of this application is not disclosed in the prior United States Application, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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